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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Dube et al.
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For: METHOD AND APPARATUS FOR TESTING THE
RESPONSIVENESS OF A NETWORK DEVICE

Assistant Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Applicants request that the following amendments be made to the above application.

In The Claims

Please delete claims 1-20 and substitute the following new claims 21-49:

21. A method of fault management in a communications network comprising:
providing a management service to monitor a contact status for each of a plurality of network devices in the communications network;
when the management service determines that a first network device has lost contact with a second network device, the management service employing a proxy network device to attempt to contact the second network device, wherein the proxy network device issues a response to the management service on the success of such attempt; and
the management service utilizing the response to determine the responsiveness of the second network device.

22. The method of claim 21, wherein a registration service is provided for registering a plurality of proxy network devices, and the management service issues a request to the registration service to employ one or more of the proxy network devices.

23. The method of claim 22, wherein the registration service maintains a network unique identifier for each proxy network device.

24. The method of claim 22, wherein a network device registers itself with the registration service when the device joins the communications network.

25. The method of claim 21, wherein each of the proxy and other network devices is one or more of a physical device and a software application.

26. The method of claim 21, wherein the proxy network device uses a protocol different from that used by the management service in its attempt to contact the second network device.

27. The method of claim 21, wherein the management service employs the proxy network device to attempt to contact other network devices also having a lost contact status.

28. The method of claim 21, wherein the management service is implemented in object-oriented programming and maintains a model of each network device, the model including a contact status for its associated network device.

29. The method of claim 21, wherein the management service employs a plurality of proxy network devices to attempt to contact the second network device.

30. The method of claim 29, wherein the management service analyzes a plurality of responses from the employed proxy network devices.

31. A fault management system comprising:

- a management service to monitor a contact status of network devices in a communications network;
- a plurality of proxy network devices accessible to the management service for attempting to contact another network device having a lost contact status; and
- a registration service for the plurality of proxy network devices, wherein the management service recruits at least one of the proxy network devices through the registration service.

32. The system of claim 31, wherein the registration service does not need to know the protocol or means of communication by which the one or more proxy network devices may attempt to contact another network device.

33. The system of claim 31, wherein the registration service includes a network unique identifier for each of the proxy network devices.

34. The system of claim 31, wherein each of the proxy and other network devices is one or more of a physical device and a software application.

35. The system of claim 31, wherein the management service maintains a success status on one or more of the proxy network devices depending upon the proxy network device's prior success in contacting another network device.

36. The system of claim 31, wherein the proxy network device is capable of sending management protocol commands or requests.

37. The system of claim 31, wherein the proxy network device knows to register itself with the registration service when it joins the communications network.

38. The system of claim 31, wherein the management service is implemented in object-oriented programming and includes an object associated with each network device.

39. The system of claim 31, wherein the management service can select one or more proxy network devices based on the amount of expected traffic on the communications network generated from the proxy network devices.

40. The system of claim 31, wherein the management service includes a method of fault analysis for examining at least one of a location and a cause of a lost contact status based upon a success of the attempt by the proxy network device to contact another network device.

41. A method of testing the responsiveness of a device in a communications network comprising:

providing a management service to monitor responsiveness for each of a plurality of network devices in the communications network;

when the management service determines that a second network device has a reduced communication capability with a first network device, the management service employing a proxy network device to attempt to determine the responsiveness of the second network device,

wherein the proxy network device issues a response to the management service on the success of such attempt; and

the management service utilizing the response to determine the responsiveness of the second network device.

42. The method of claim 41, wherein each of the proxy and other network devices is one or more of a physical device and a software application.

43. The method of claim 41, wherein the proxy network device uses a protocol different from that used by the management service in its attempt to determine the responsiveness of the second network device.

44. The method of claim 41, wherein the management service is implemented in object-oriented programming and maintains a model of each network device.

45. The method of claim 39, wherein the management service employs a plurality of proxy network devices to attempt to determine the responsiveness of the second network device.

46. The method of claim 45, wherein the management service analyzes a plurality of responses from the plurality of employed proxy devices.

47. The method of claim 46, wherein a registration service is provided for registering a plurality of proxy network devices, and the management service issues a request to the registration service to employ one or more of the proxy network devices.

48. The method of claim 47, wherein the registration service maintains a network unique identifier for each proxy network device.

49. The method of claim 47, wherein a network device registers itself with the registration service when the device joins the communications network.

Respectfully submitted,

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